ECM group

January 17, 2006

Peter Van Alyea
Redwood Oil Company
P.O. Box 428
Santa Rosa, CA 95403

Re: Workplan for Area 3 Excavation
4925 Sonoma Highway
Santa Rosa, CA
ECM Project #98-517-22

Dear Mr Van Alyea:

This workplan outlines procedures to be followed during excavation, stockpiling, sampling, and disposal of soil from Area 3 at the above referenced site (Figures 1 and 2, Appendix A). Area 1 and Area 2 were excavated during November 2004 through January 2005, and in December 2005. The excavation is part of a phased remodeling program for the site which includes: demolition of the site retail store; removal of existing fuel lines and dispensers; modification of the existing underground storage tanks (USTs); construction of a new retail store; installation of new dispensers and product piping; and paving. The June 8, 2004 Soil Remediation Plan (SRP), the June 8, 2004 Piping Removal Plan, SRP Addendum #1 (July 8, 2004), SRP Addendum #2 (July 26, 2004), and SRP Addendum #3 (August 26, 2004) outlined procedures for site excavation and piping removal. Results of Area 1 and 2 excavation were provided in a transmission dated December 22, 2005.

Soil and ground water at the site are impacted with petroleum hydrocarbons as a result of a release from USTs, piping, and dispensers formerly located on-site. The USTs were removed in 1992 and replaced with an upgraded UST/piping/dispenser system.

Location of Areas 1, 2, and 3 are shown on Figure 2, Appendix A. Area 3 comprises the southern portion of the site. Site USTs, as well as the canopy and former dispensers, are located in Area 3. In December, 2005, samples were collected from beneath dispensers and piping runs in Area 3. Sampling results were provided in a transmission dated December 22, 2005. Results

indicated that impacted soil is located in Area 3 beneath the piping runs and former dispensers.

Prior to excavation, monitoring well MW-3 and air injection points AS-4 through AS-7, located in the proposed excavation footprint, will be properly destroyed. A workplan for well destruction will be provided under separate cover.

The following procedures shall be followed for soil excavation during excavation of Area 3:

1. A site specific safety plan (SSP) will be on-site at all times. The SSP will specify procedures to protect site workers and the general public. The SSP is attached as Appendix B of this document.

2. An organic vapor meter will be on-site during excavation activities, and hourly air monitoring measurements will be recorded.

3. Area 3 will be divided in two areas: Area 3A and Area 3B (Figure 2, Appendix A). For safety reasons when excavating near the canopy footings, Area 3A will be excavated prior to Area 3B. Prior to excavation, shoring will be installed on the east and south sidewalls of Area 3A. The northern sidewall of Area 3A has already been shored. Due to the presence of boulders in the subsurface, it may be necessary to install trenching in order to install the shoring. In that case, excavation sidewall sampling on the east and south side of the excavation shall be conducted during trenching activities.

4. Excavation near the canopy footings will be conducted with caution in order to preserve the integrity of the canopy footings. Also, in order to preserve the integrity of the canopy footings, Area 3A will be backfilled prior to excavation of Area 3B.

5. Following excavation and backfilling of Area 3A, excavation of Area 3B will be conducted. Area 3B will be excavated from the east towards the west. If necessary in order to excavate all the soil in Area 3B, shoring shall be installed on the south and east sidewalls and around the USTs.

6. All excavated soil shall be placed in a bermed, covered stockpile or will be placed directly into trucks for transport under appropriate manifest to an appropriate disposal facility.

7. Soil samples will be collected from excavation sidewalls as directed by the Santa Rosa Fire Department (SRFD) and/or the North Coast Regional Water Quality Control Board (Board). All samples shall be collected in accordance with ECM Standard Operating Procedure for Soil Sampling - Stockpiles and Excavations (Appendix C). Soil samples and water samples (if water samples are collected) will be analyzed for TPPH(G), TPH(D), TPH(MO), BTEX, O&G, MTBE, LUFT 5 Metals, and VOCs. Soil samples will be collected in accordance with ECM Standard Operating Procedures – Soil Sampling - Stockpiles and Excavations (Appendix C). If water is present in an excavation, a sample will be collected by lowering a disposable bailer into the excavation pit, collecting water in the bailer, and decanting the bailer into the appropriate sampling container. All samples will be labeled, placed in an ice chest at a temperature of 4° C or lower, and transported under chain of custody to the state-certified analytical laboratory.

   The following table lists analytical methods and detection limits for the analytes.

Analyte	Preparation Method	Analytical Method	Detection [1] Limit
TPPH(G)	EPA 5035 B (soil) EPA 5030 B (water)	EPA 8015M or EPA 8260B	1 mg/Kg (soil) 50 µg/L (water)
TPH(D)	EPA 3550B (soil) EPA 3510B (water)	EPA 8015M	2.5 mg/Kg (soil) 50 µg/L (water)
TPH(MO)	EPA 3550B (soil) EPA 3510B (water)	EPA 8015M	10 mg/kg (soil) 250 µg/L (water)

Analyte	Preparation Method	Analytical Method	Detection [1] Limit
O&G	---	Standard Methods Method 5520C,F (soil) EPA 418.1 (water)	25 mg/Kg (soil) 5 mg/L (water)
Luft 5 Metals Cadmium (Cd) Chromium (Cr) Lead (Pb) Nickel (Ni) Zinc (Zn)	EPA 3050B (soil) EPA 3010B (water)	EPA 6010B	Soil: 1.0 mg/Kg Water: Cd = 0.005 mg/L Cr = 0.005 mg/L Pb = 0.015 mg/L Ni = 0.005 mg/L Zn = 0.005 mg/L
BTEX (Benzene Toluene Ethylbenzene Xylenes)	EPA 5035 B (soil) EPA 5030 B (water)	EPA 8260B or EPA 8020	0.005 mg/Kg (soil) 1.0 µg/L (water)
MTBE	EPA 5035 B (soil) EPA 5030 B (water)	EPA 8260B	0.05 mg/Kg (soil) 1.0 µg/L (water)
VOCs	EPA 5035 B (soil) EPA 5030 B (water)	EPA 8260B	5 – 100 µg/Kg (soil)[2] 0.5 – 20 µg/L (water)

Notes:

[1] If analyte concentration is high, it is sometimes necessary to dilute the sample, thereby raising the detection limit.

[2] Full list for VOCs consists of approximately 80 analytes. Detection limits vary.[2]

8. Ground water is present beneath the site at depths varying seasonally between approximately 15 and 25 ft bgs. It is not anticipated that ground water will be encountered during any of the planned excavation activities on-site. However, should ground water be encountered, it will be assumed to be impacted with petroleum hydrocarbons. If necessary, ground water will be pumped from the excavation into vacuum trucks or into temporary storage tanks on-site. Any such ground water will be transported under appropriate manifest to an appropriate waste disposal facility, or will be discharged to the sanitary sewer under appropriate permit.

   Separate-phase hydrocarbons have never been encountered during subsurface investigation activities at the site. It is not anticipated that separate-phase hydrocarbons will be encountered during any of the remodeling activities. However, should separate-phase hydrocarbons be encountered, they shall be pumped into fifty-five gallon DOT 17H drums or into vacuum truck(s), and transported under proper manifest to an appropriate waste disposal facility.

Thank you for allowing ECM to provide environmental consulting services to Redwood Oil Company. Please call if you have questions or require additional information.

Sincerely,
ECM Group

Jim Green
Professional Engineer #C58482

Attachments: Appendix A - Figures
Appendix B - Site Safety Plan
Appendix C - ECM Standard Operating Procedures

APPENDIX A

FIGURES

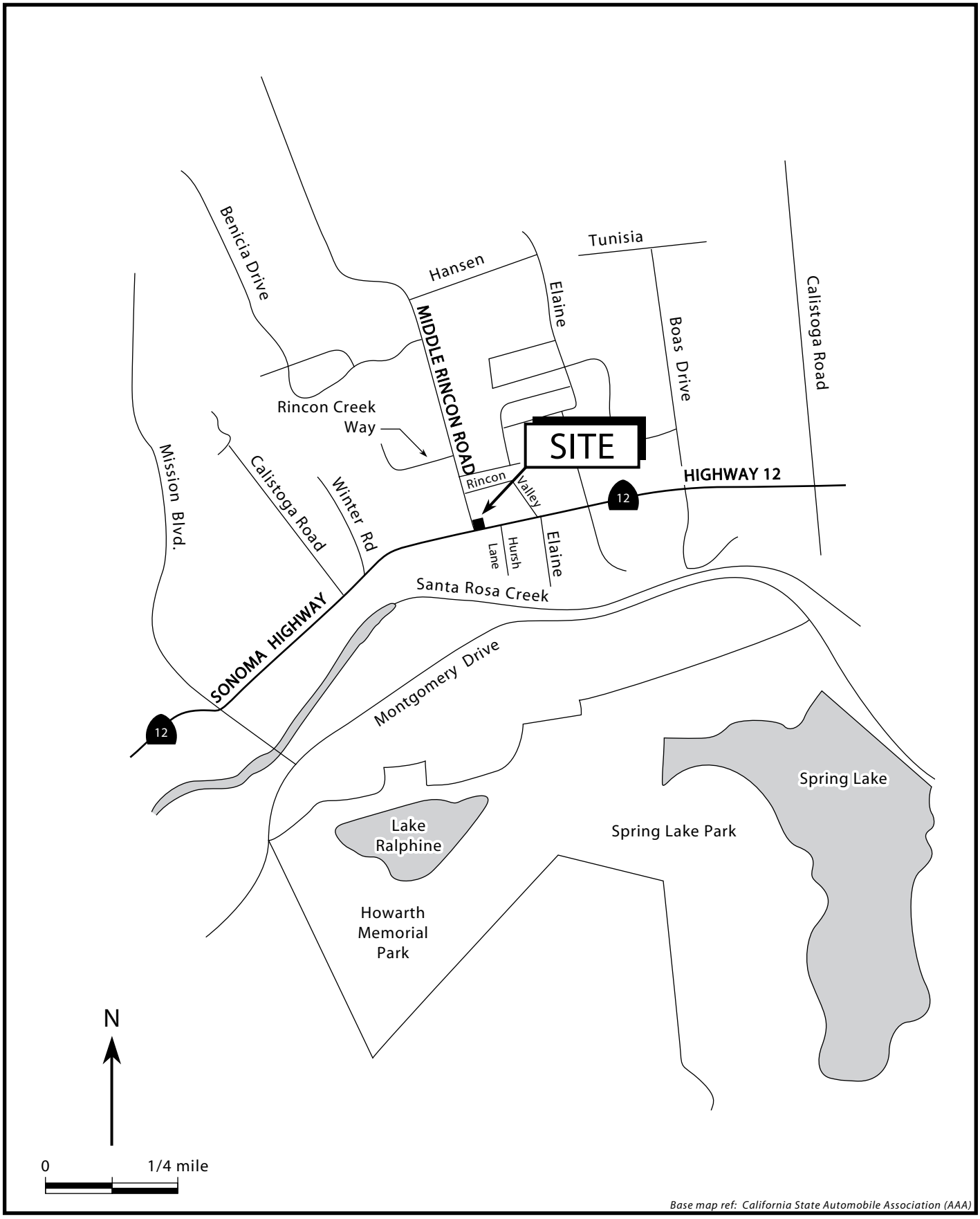

Figure 1. Site Location Map – Redwood Oil Service Station #101, 4925 Sonoma Highway, Santa Rosa, California

98-517 [Site Location map] 10-03

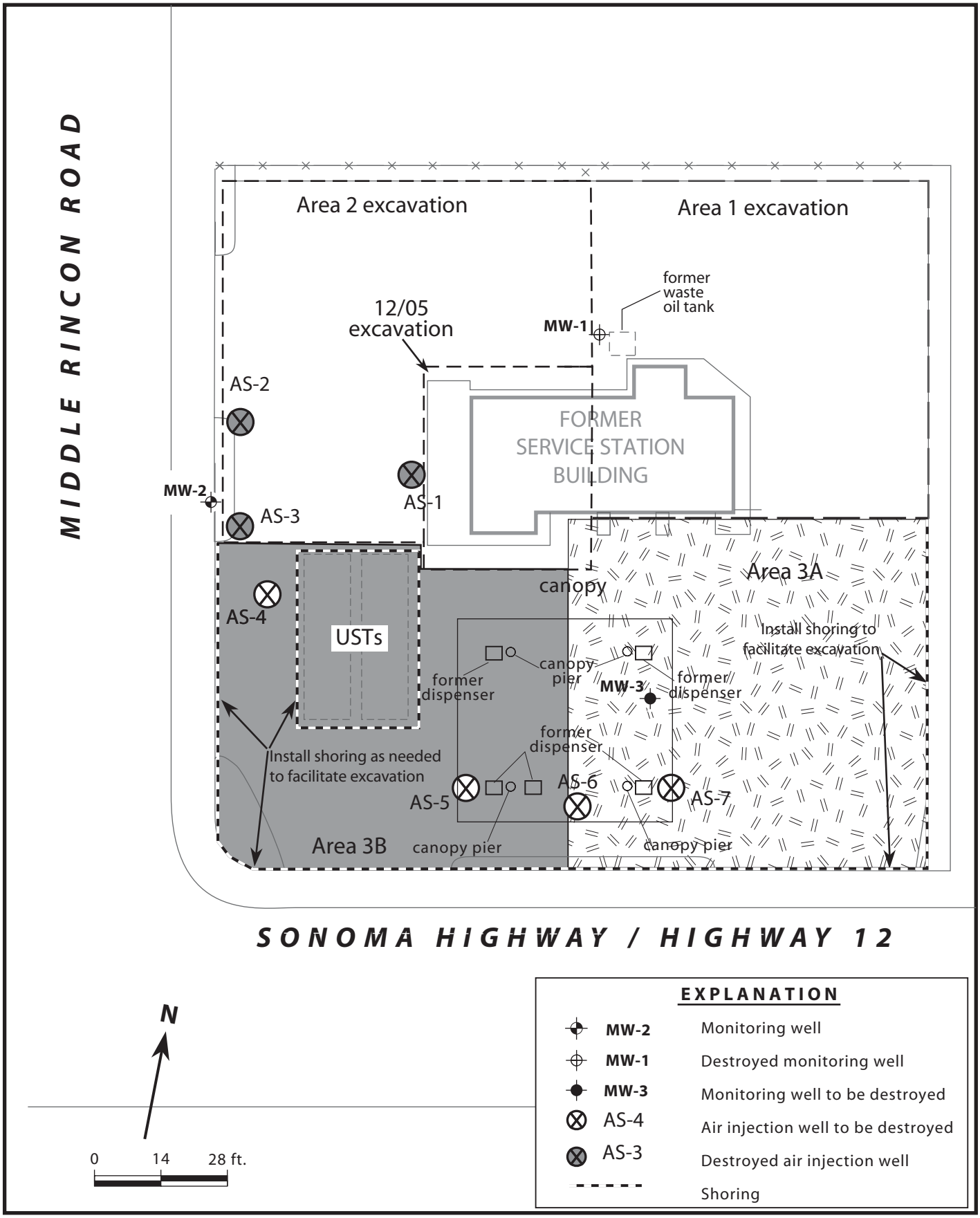

Figure 2. Site Plan and Excavation Limits - Redwood Oil Service Station #101, 4925 Sonoma Highway, Santa Rosa, California

98-517-22 [phase 3_excav limits] 1/16/06

APPENDIX B

SITE SAFETY PLAN

APPENDIX C

ECM STANDARD OPERATING PROCEDURES STANDARD OPERATING PROCEDURE

SOIL SAMPLING - STOCKPILES AND EXCAVATIONS

The following describes sampling procedures used by ECM field personnel to collect, handle, and transport soil samples from stockpiles and excavations. Before samples are collected, careful consideration is given to the type of analysis to be performed so that precautions are taken to prevent loss of volatile components or contamination of the sample, and to preserve the sample for subsequent analysis.

All sampling equipment is washed with an EPA-approved detergent (such as liquinox or trisodium phosphate) between samples. Sample collection methods specific to excavations and stockpiles are presented below.

Samples for both stockpiles and excavations are collected using steam-cleaned or new stainless steel or brass tubes, or glass sampling jars provided by the analytical laboratory. Approximately six inches of soil are removed from the surface of the stockpile or the sidewall or bottom of the excavation immediately prior to sample collection. A backhoe or other machinery may be used to collect a bucket sample from a deep (greater than 5 feet) excavation. The brass tube is driven into the sidewall or bottom of the excavation (or bucket sample), twisted and removed when it has been filled. The soil material is immediately trimmed flush with the tube ends, and sealed with Teflon tape beneath polyethylene end caps. The sample is then labeled to include the date, location and number of sample, project number, ECM (company name), and the ECM field personnel's initials. The samples are put into a plastic "zip-lock" type bag and placed into an ice chest maintained below 4˚C with blue ice or dry ice, for transport under chain of custody to the laboratory.

The chain of custody form includes the project number, analysis requested, sample ID, date analysis and the ECM field personnel's name. The form is signed, dated and timed by each person who yields or receives the samples beginning with the field personnel and ending with the laboratory personnel.